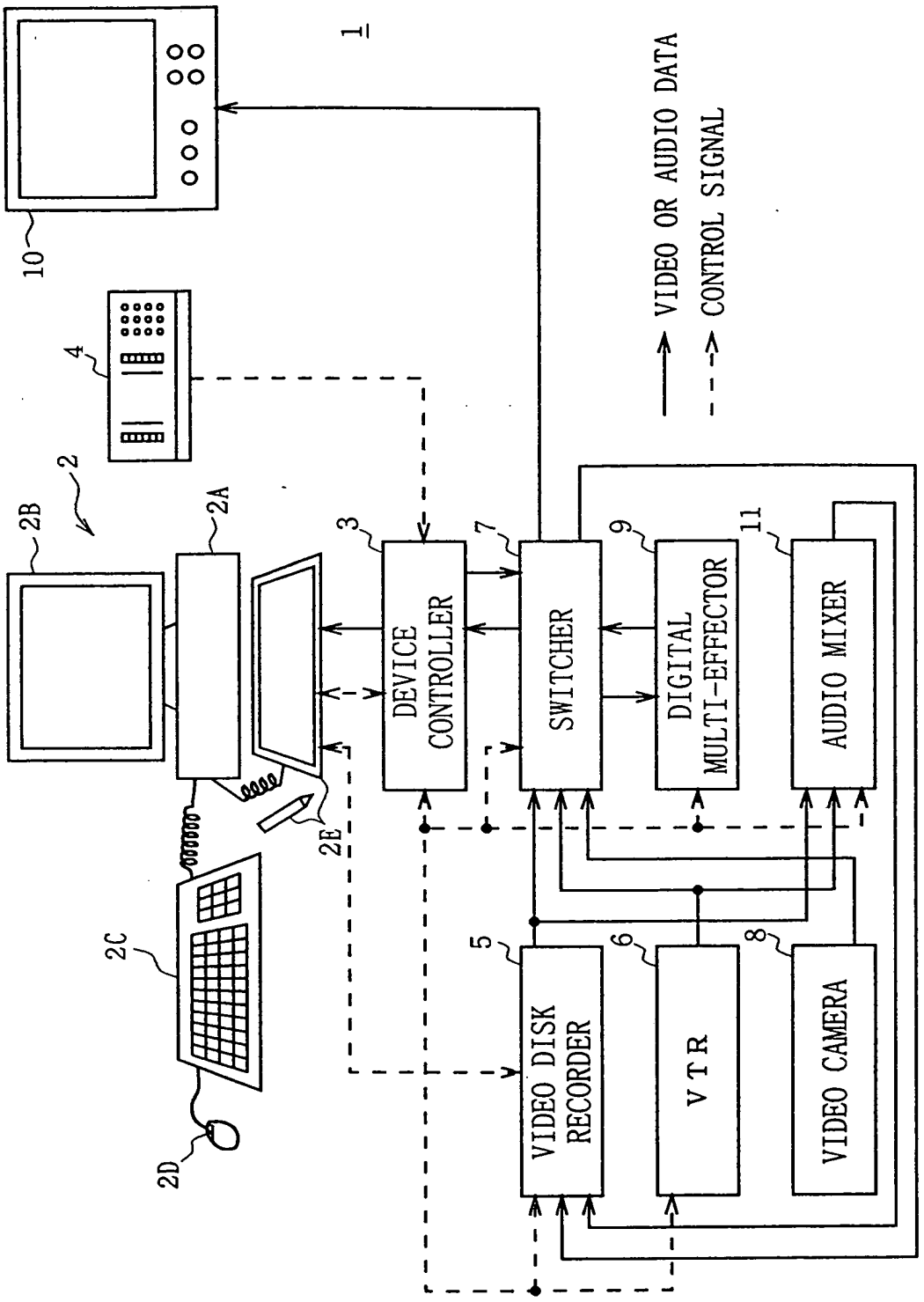
1
10
4
2
2B
2A
2C
2D
2E
3
DEVICE CONTROLLER
7
SWITCHER
9
DIGITAL MULTI-EFFECTOR
11
AUDIO MIXER
5
VIDEO DISK RECORDER
6
V T R
8
VIDEO CAMERA
VIDEO OR AUDIO DATA
CONTROL SIGNAL

FIG. 1

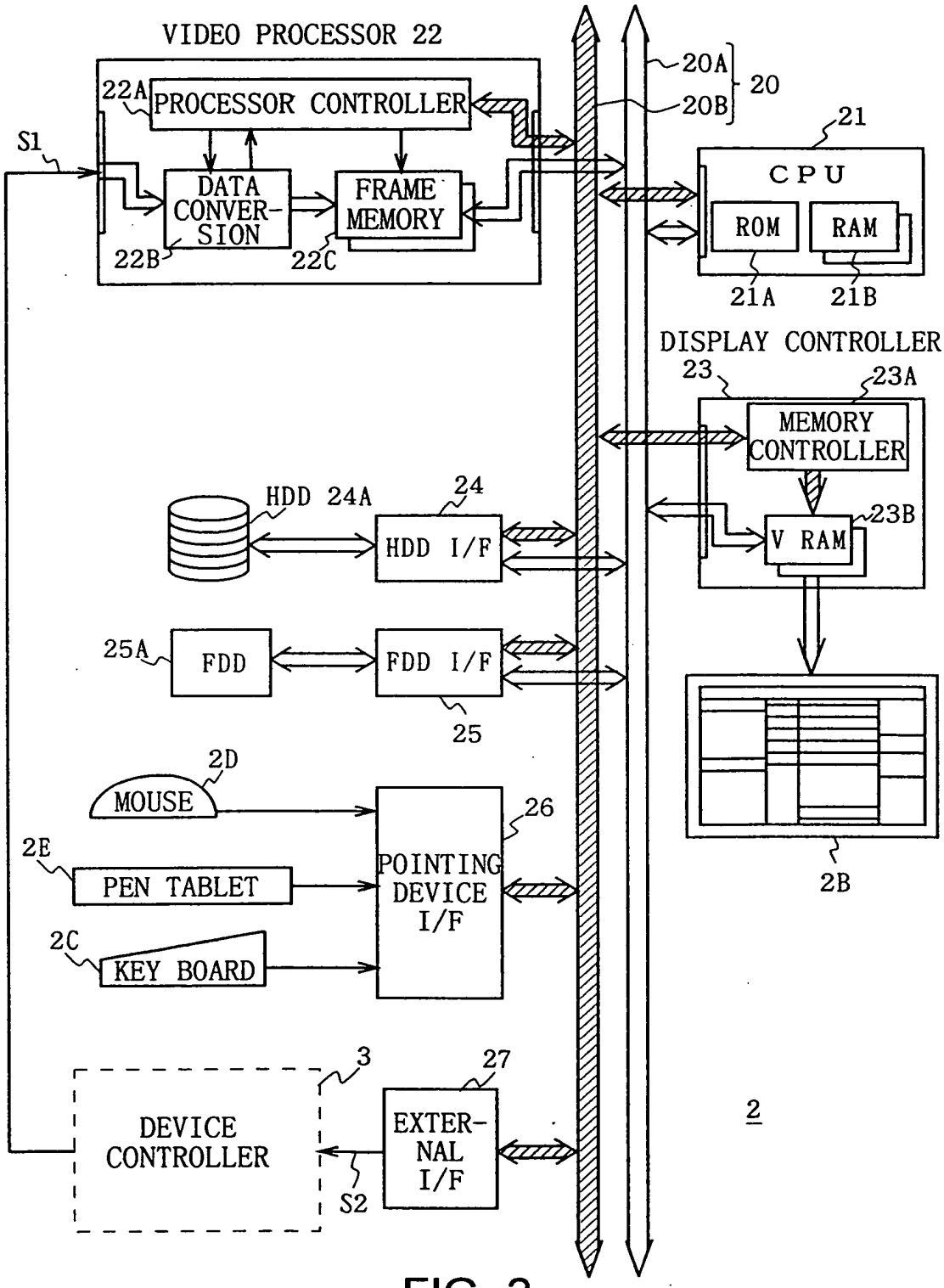
VIDEO PROCESSOR 22
22A
PROCESSOR CONTROLLER
S1
DATA CONVER-SION
FRAME MEMORY
22B
22C
20A
20B
20
21
CPU
ROM
RAM
21A
21B
DISPLAY CONTROLLER
23
23A
MEMORY CONTROLLER
23B
V RAM
HDD 24A
24
HDD I/F
25A
FDD
FDD I/F
25
2D
MOUSE
26
2E
PEN TABLET
POINTING DEVICE I/F
2C
KEY BOARD
3
27
DEVICE CONTROLLER
EXTER-NAL I/F
S2
2
2B

FIG. 2

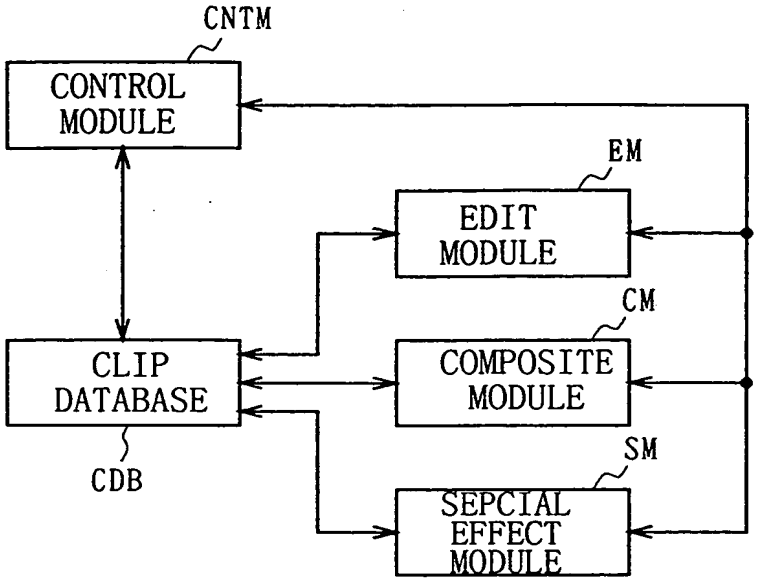
CNTM
CONTROL MODULE
EM
EDIT MODULE
CM
COMPOSITE MODULE
CLIP DATABASE
CDB
SM
SEPCIAL EFFECT MODULE

FIG. 3

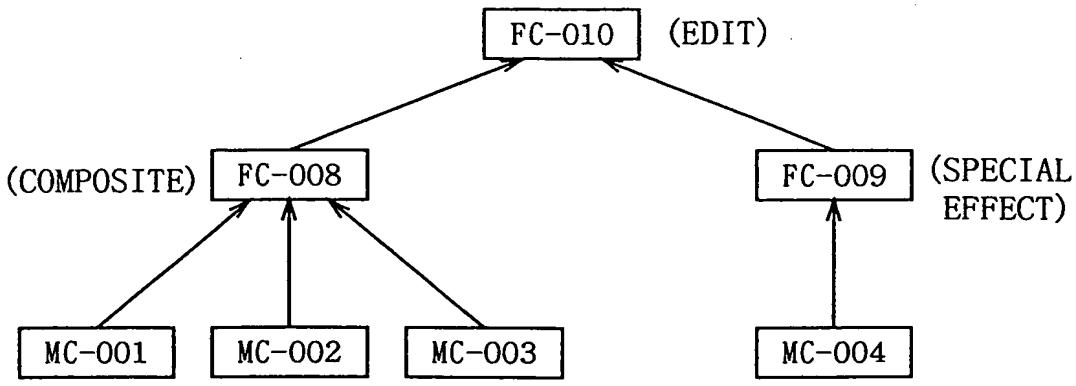
FC-010
(EDIT)
(COMPOSITE)
FC-008
FC-009
(SPECIAL EFFECT)
MC-001
MC-002
MC-003
MC-004

FIG. 4

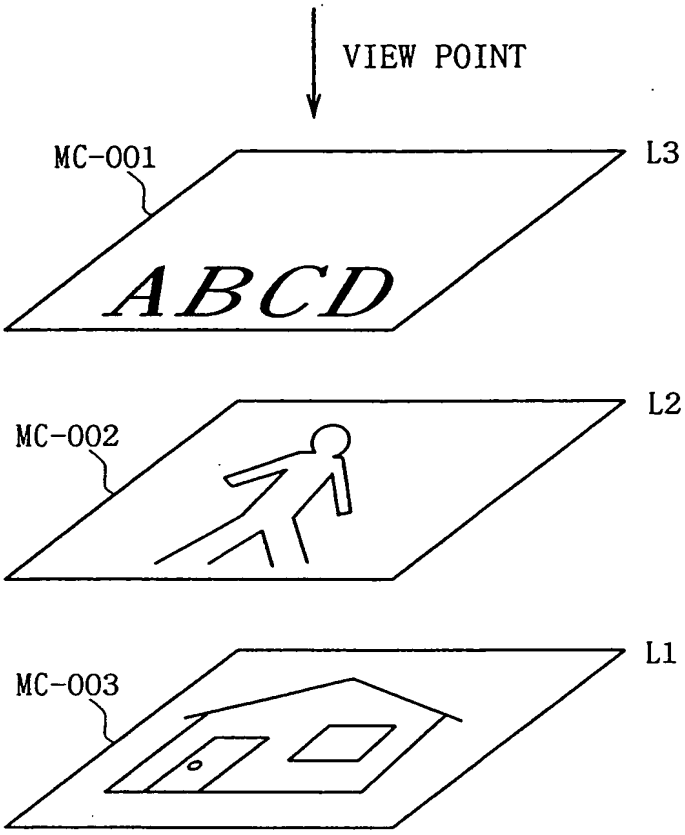

FIG. 5

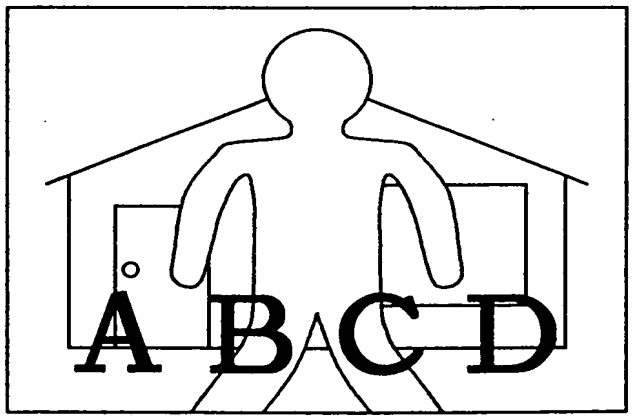

FIG. 6

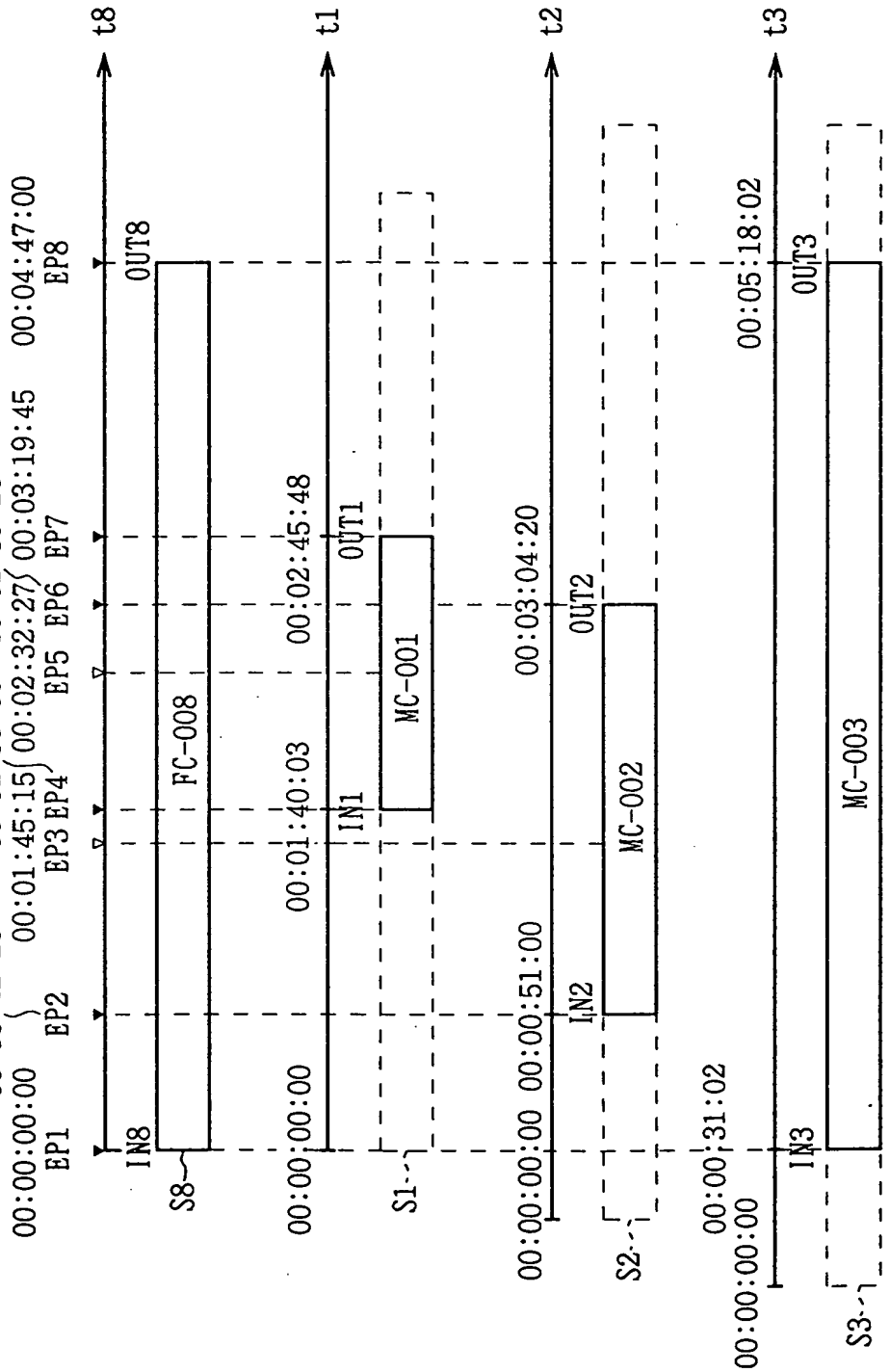
00:00:00:00
00:00:42:20
00:01:45:15
00:01:56:00
00:02:32:27
00:02:59:20
00:03:19:45
00:04:47:00
EP1
EP2
EP3
EP4
EP5
EP6
EP7
EP8
t8
t1
t2
t3
IN8
OUT8
FC-008
S8
00:00:00:00
00:01:40:03
IN1
OUT1
MC-001
S1
00:00:00:00
00:00:51:00
00:02:45:48
00:03:04:20
IN2
OUT2
MC-002
S2
00:00:00:00
00:00:31:02
00:05:18:02
IN3
OUT3
MC-003
S3

FIG. 7

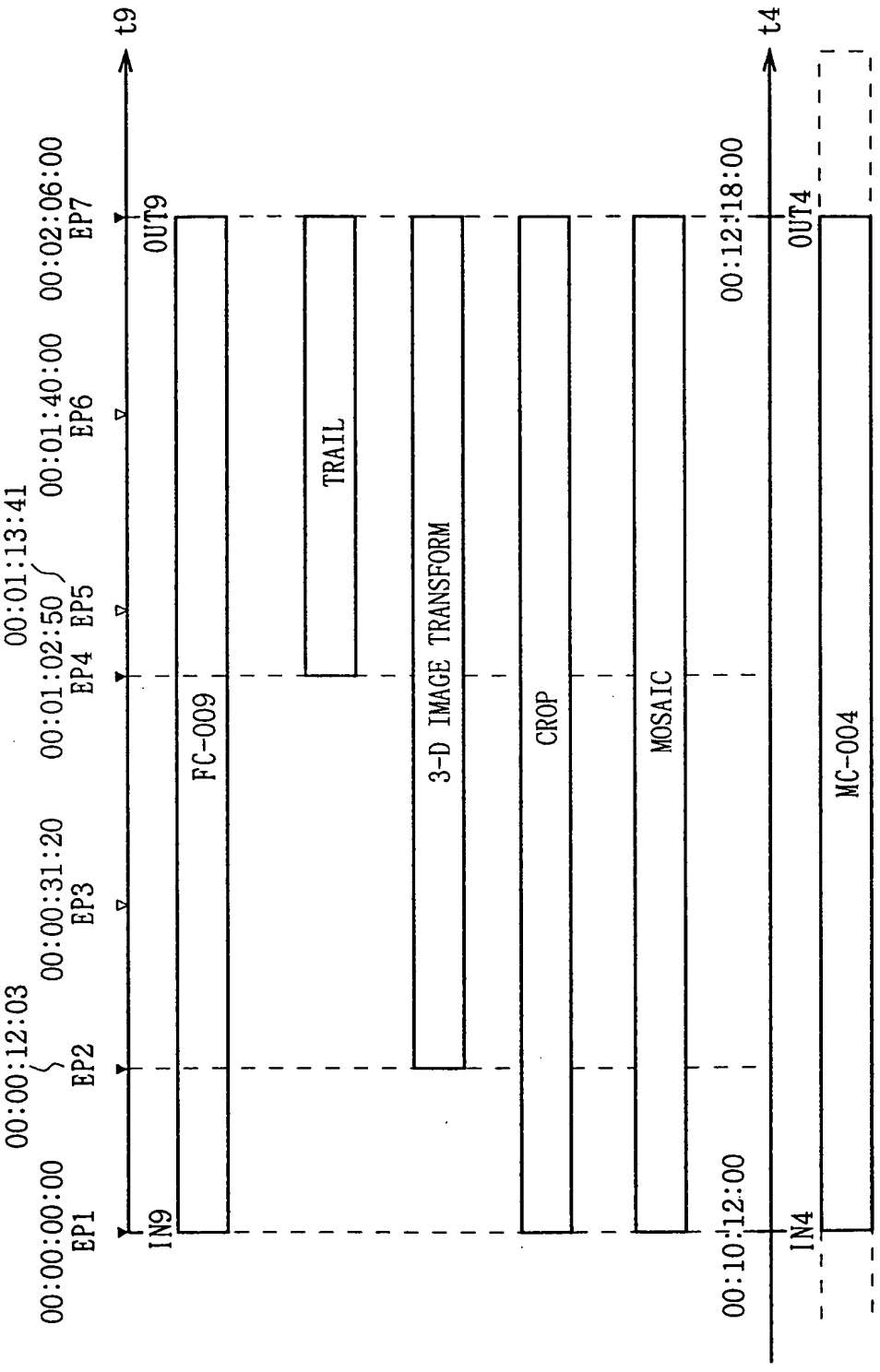
00:00:00:00
EP1
00:00:12:03
EP2
00:00:31:20
EP3
00:01:02:50
EP4
00:01:13:41
EP5
00:01:40:00
EP6
00:02:06:00
EP7
t9
IN9
OUT9
FC-009
TRAIL
3-D IMAGE TRANSFORM
CROP
MOSAIC
00:10:12:00
00:12:18:00
t4
IN4
OUT4
MC-004

FIG. 8

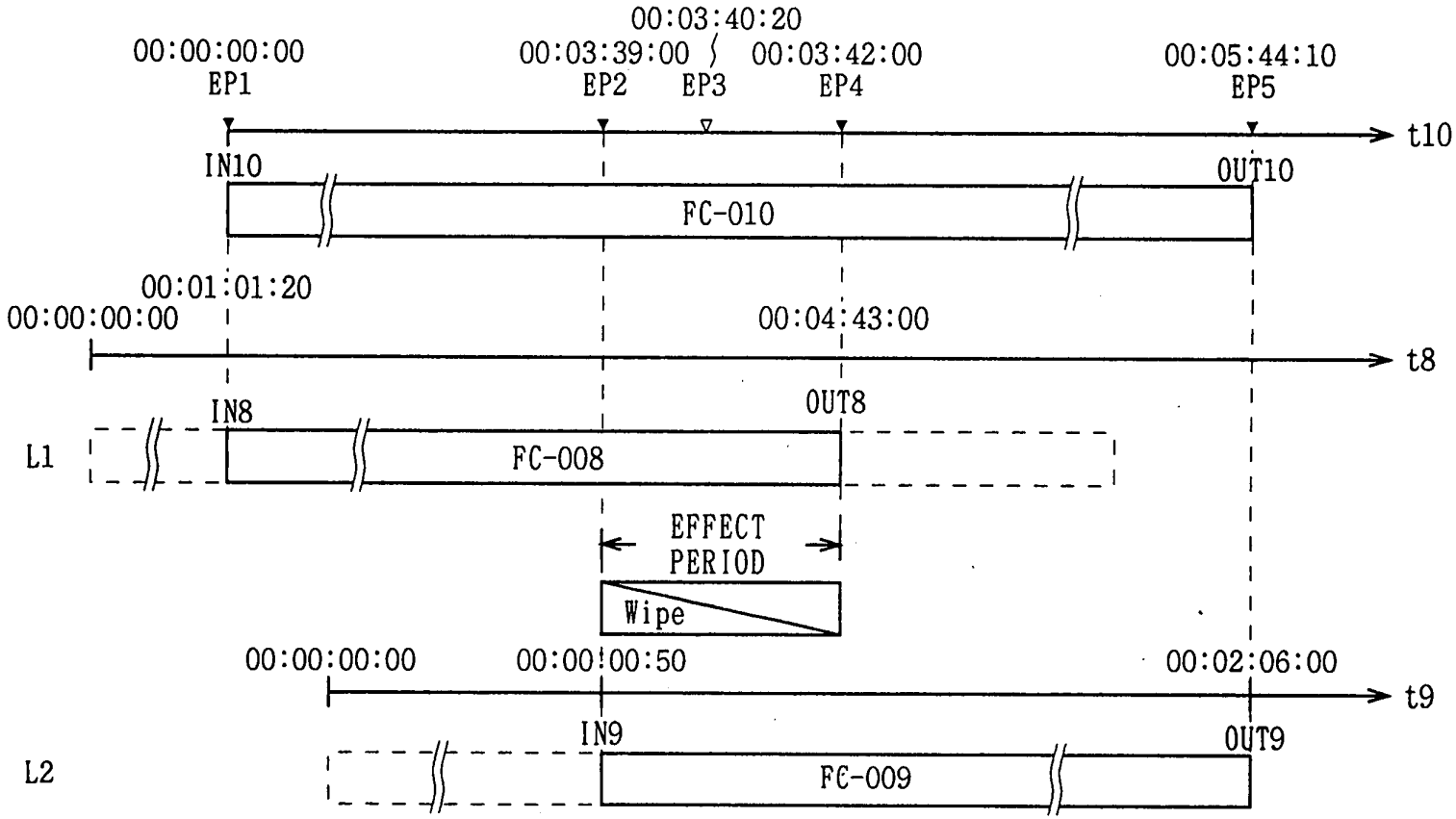
00:03:40:20
00:00:00:00
EP1
00:03:39:00
EP2
EP3
00:03:42:00
EP4
00:05:44:10
EP5
t10
IN10
OUT10
FC-010
00:01:01:20
00:00:00:00
00:04:43:00
t8
IN8
OUT8
L1
FC-008
EFFECT
PERIOD
Wipe
00:00:00:00
00:00:00:50
00:02:06:00
t9
IN9
OUT9
L2
FC-009

FIG. 9

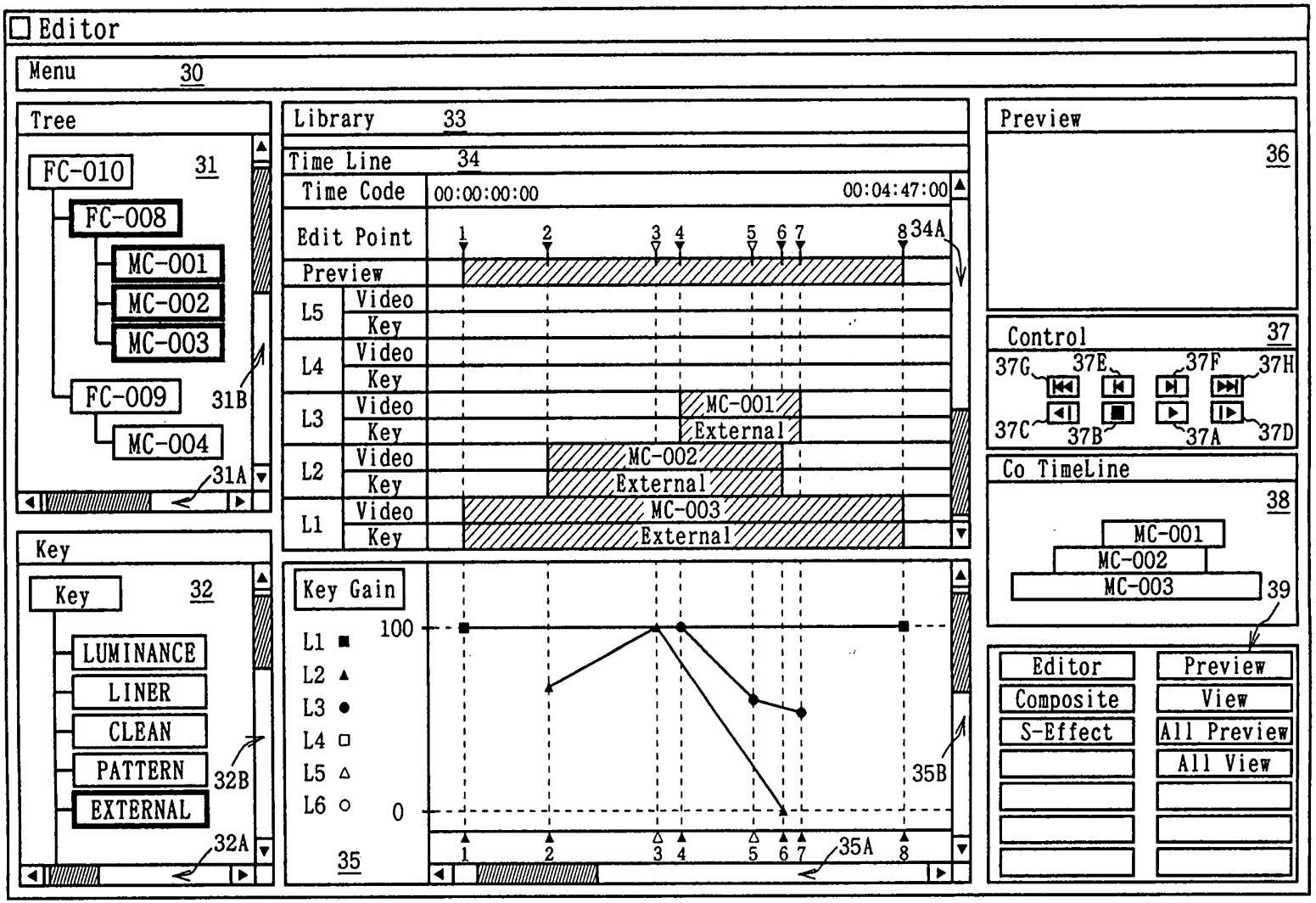
Editor
Menu 30
Tree
FC-010 31
FC-008
MC-001
MC-002
MC-003
FC-009
MC-004
31B
31A
Key
Key 32
LUMINANCE
LINER
CLEAN
PATTERN
EXTERNAL
32B
32A
Library 33
Time Line 34
Time Code
00:00:00:00
00:04:47:00
Edit Point
Preview
34A
L5 Video Key
L4 Video Key
L3 Video Key MC-001 External
L2 Video Key MC-002 External
L1 Video Key MC-003 External
Key Gain
L1 L2 L3 L4 L5 L6
100
0
35
35A
35B
Preview 36
Control 37
37G 37E 37F 37H
37C 37B 37A 37D
Co TimeLine 38
MC-001
MC-002
MC-003
39
Editor
Composite
S-Effect
Preview
View
All Preview
All View

FIG. 10

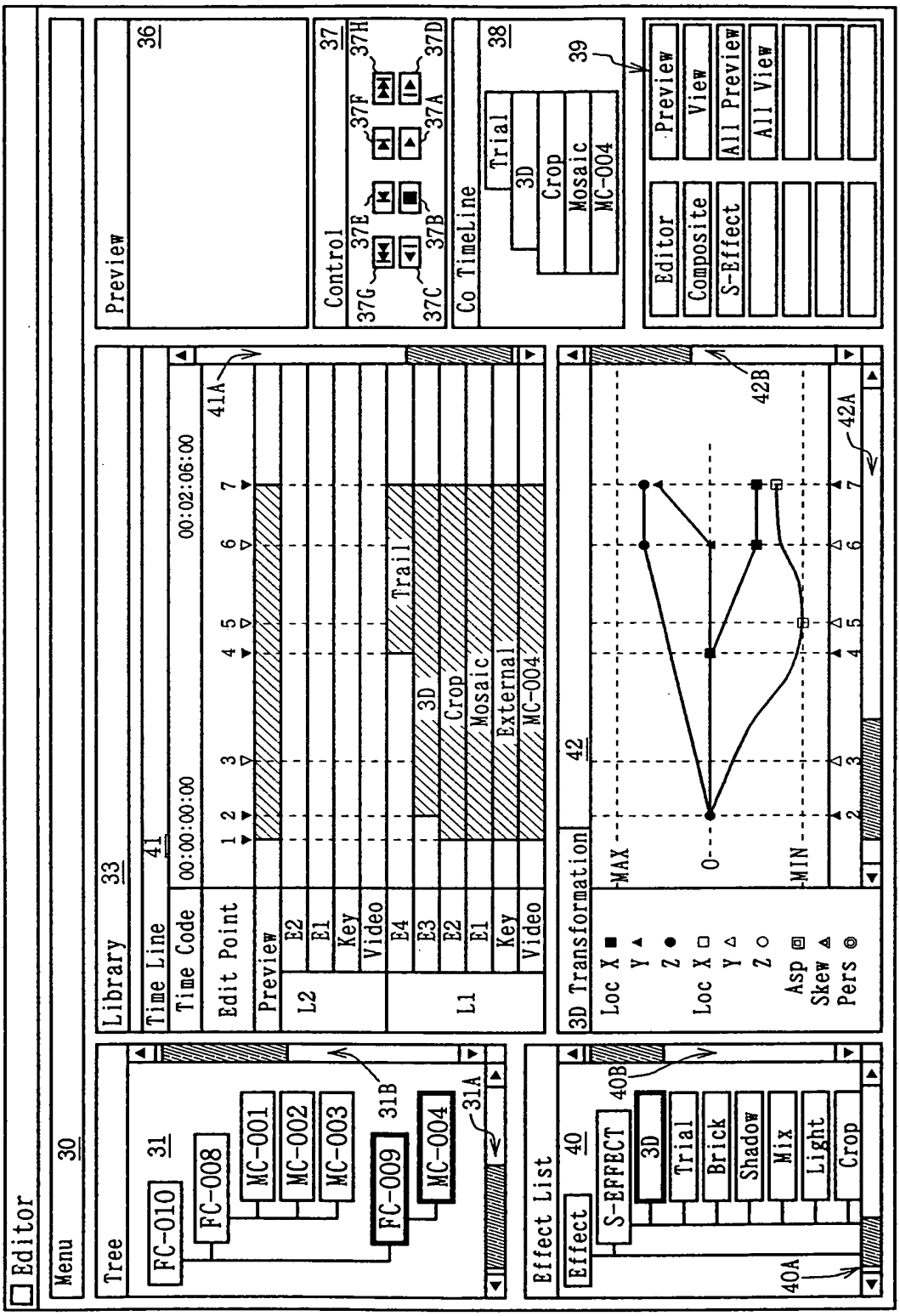
Editor
Menu 30
Tree 31
FC-010
FC-008
MC-001
MC-002
MC-003
FC-009
MC-004
31B
31A
Effect List 40
Effect
S-EFFECT
3D
Trial
Brick
Shadow
Mix
Light
Crop
40B
40A
Library 33
Time Line 41
Time Code
Edit Point
00:00:00:00
00:02:06:00
41A
Preview
L2
E2
E1
Key
Video
L1
E4
E3
E2
E1
Key
Video
Trail
3D
Crop
Mosaic
External
MC-004
3D Transformation 42
Loc X
Y
Z
Loc X
Y
Z
Asp
Skew
Pers
MAX
0
MIN
42B
42A
Preview 36
Control 37
37G
37E
37C
37B
37F
37A
37H
37D
Co TimeLine 38
Trial
3D
Crop
Mosaic
MC-004
39
Editor
Composite
S-Effect
Preview
View
All Preview
All View

FIG. 11

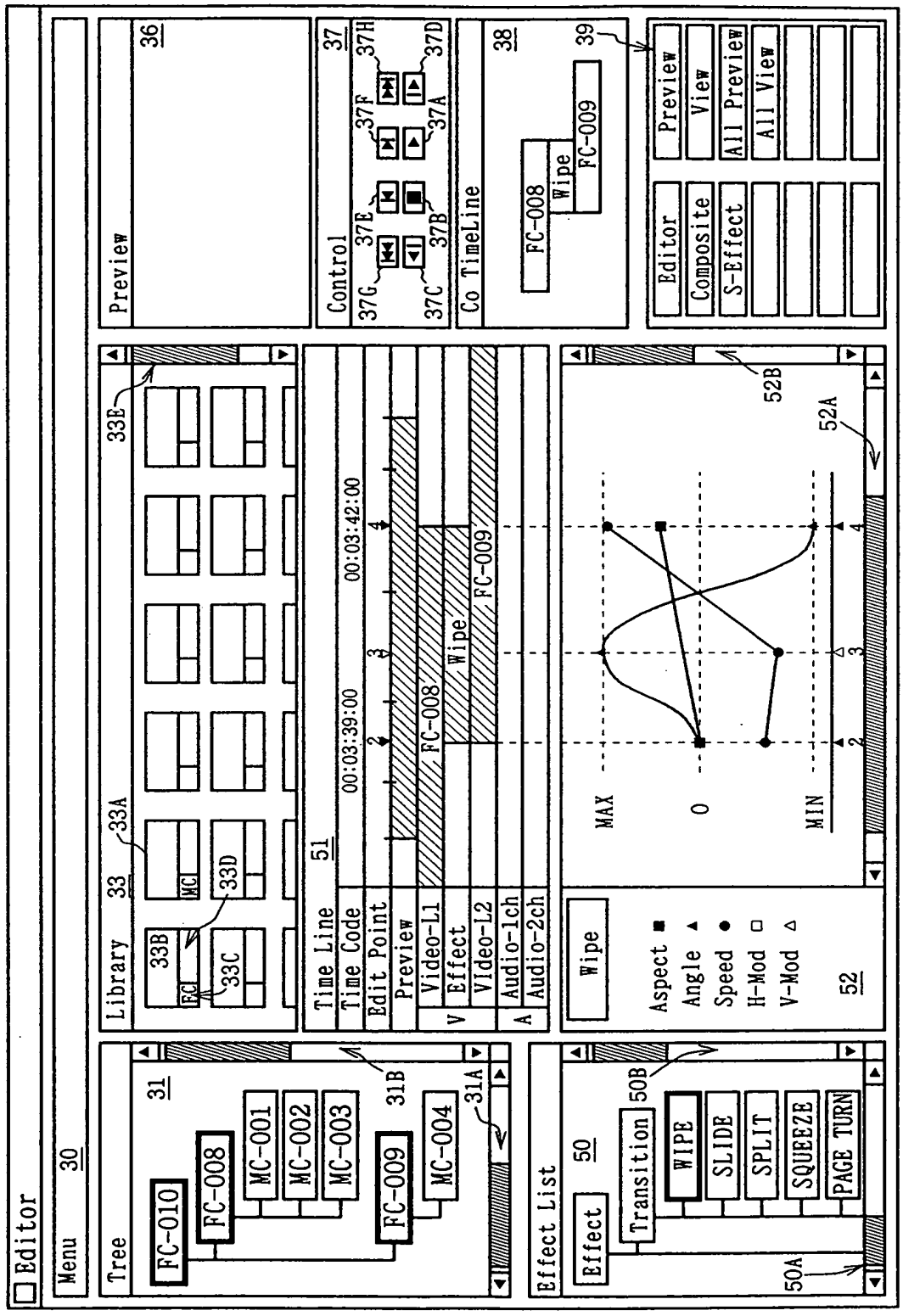
Editor
Menu 30
Tree 31
FC-010
FC-008
MC-001
MC-002
MC-003
FC-009
MC-004
31B
31A
Effect List
Effect 50
Transition 50B
WIPE
SLIDE
SPLIT
SQUEEZE
PAGE TURN
50A
Library 33
33A
33B
EC
33C
MC
33D
33E
Time Line 51
Time Code
00:03:39:00
00:03:42:00
Edit Point
Preview
Video-L1
Effect
Video-L2
Audio-1ch
Audio-2ch
V
A
FC-008
Wipe
FC-009
Wipe
Aspect
Angle
Speed
H-Mod
V-Mod
MAX
0
MIN
52
52A
52B
Preview 36
Control 37
37G
37E
37B
37C
37F
37A
37H
37D
Co TimeLine 38
FC-008
Wipe
FC-009
39
Editor
Composite
S-Effect
Preview
View
All Preview
All View

FIG. 12

CLIP ID CODE	CLIP NAME	AT-TRIB-UTE	POINTER TO IMAGE DATA	DURATION	PARENT LINK ID CODE	CHILD LINK ID CODE			ENABLE/ DISABLE FLAG	WORK DATA		
						L 1	L 2	L 3		MODULE ID CODE	EDITING POINT DATA	IMAGE PROCESSING DATA
001	MC-001	M	8 byte	00:08:02:10	008				E			
002	MC-002	M	8 byte	00:05:11:00	008				E			
003	MC-003	M	8 byte	00:10:55:01	008				E			
004	MC-004	M	8 byte	00:20:31:07	009				E			
005	MC-005	M	8 byte	01:02:20:29					D			
006	MC-006	M	8 byte	00:00:10:00					D			
007	MC-007	M	8 byte	00:02:28:18					D			
008	FC-008	F	8 byte	00:04:47:00	010	003	002	001	E	C	EDIT P DATA	COMP DATA
009	FC-009	F	8 byte	00:02:06:00	010	004			E	S	EDIT P DATA	S-EFFECT DATA
010	FC-010	F	8 byte	00:05:44:10	000	008	009		E	E	EDIT P DATA	EDIT DATA

FIG. 13

CLIP ID CODE	CLIP NAME		PARENT LINK ID CODE	CHILD LINK ID CODE			ENABLE/ DISABLE FLAG	WORK DATA		
				L 1	L 2	L 3		MODULE ID CODE	EDITING POINT DATA	IMAGE PROCESSING DATA
001	MC-001		008				E			
002	MC-002		008				E			
003	MC-003		008				E			
004	MC-004		009				E			
005	MC-005						D			
006	MC-006						D			
007	MC-007						D			
008	FC-008		010	003	002	001	E	C	EDIT P DATA	COMPOSITE DATA
009	FC-009		010	004			E	S	EDIT P DATA AFTER MODIFICATION	S-EFFECT DATA AFTER MODIFICATION
010	FC-010		000	008	009		E	E	EDIT P DATA	EDIT DATA
009BK1	FC-009BK1		010	004			D	S	EDIT P DATA BEFORE MODIFICATION	S-EFFECT DATA BEFORE MODIFICATION

FIG. 14

	EDITING POINT DATA									
008	EDIT-ING POINT	ID	EP1	EP2	EP3	EP4	EP5	EP6	EP7	EP8
		TIME CODE	00:00:00:00	00:00:42:20	00:01:45:15	00:01:56:00	00:02:32:27	00:02:59:20	00:03:19:45	00:04:47:00
	L1	IN	00:00:31:02							
		OUT								00:05:18:02
	L2	IN		00:00:51:00						
		OUT						00:03:04:20		
	L3	IN				00:01:40:03				
		OUT							00:02:45:48	

FIG. 15

	EDITING POINT DATA									
009	EDIT-ING POINT	ID	EP1	EP2	EP3	EP4	EP5	EP6	EP7	
		TIME CODE	00:00:00:00	00:00:12:03	00:00:31:20	00:01:02:50	00:01:13:41	00:01:40:00	00:02:06:00	
	L1	IN	00:10:12:00							
		OUT							00:12:18:00	

FIG. 16

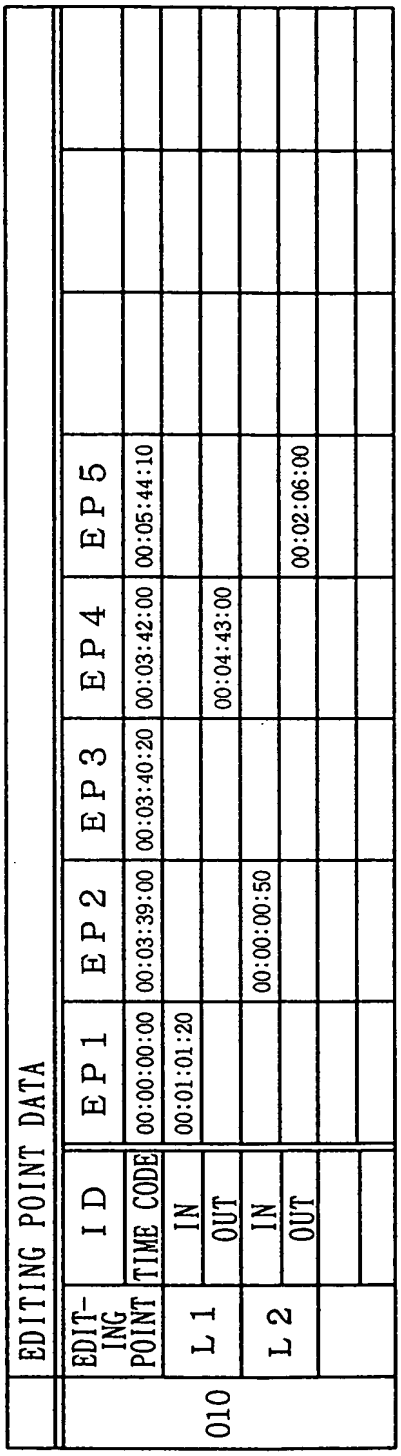
010
EDITING POINT DATA
EDIT-ING POINT
ID
TIME CODE
EP1
EP2
EP3
EP4
EP5
L1
IN
00:00:00:00
00:03:39:00
00:03:40:20
00:03:42:00
00:05:44:10
OUT
00:01:01:20
00:04:43:00
L2
IN
00:00:00:50
OUT
00:02:06:00

FIG. 17

	COMPOSITE DATA								
008	EDITING POINT ID	EP1	EP2	EP3	EP4	EP5	EP6	EP7	EP8
	L1 COMPOSITE GAIN	100	--	--	--	--	--	--	100
	L2 COMPOSITE GAIN		59	100	--	--	0		
	L3 COMPOSITE GAIN				100	67	--	51	

FIG. 18

	SPECIAL EFFECT DATA										
009	L1	E1									
		E2									
		E3	EFFECT ID	1025							
			EDIT P ID	EP1	EP2	EP3	EP4	EP5	EP6	EP7	
			Loc X		0	--	0	--	-1.6	-1.6	
			Loc Y		0	--	--	--	0	+2.0	
			Loc Z		0	--	--	--	+2.2	+2.2	
			Rot X		0	--	--	-180	--	-102	
			Rot Y		0	--	--	--	--	0	
			Rot Z		0	--	--	--	--	0	
			Asp		0	--	--	--	--	0	
			Skew		0	--	--	--	--	0	
			Pers		0	--	--	--	--	0	
		E4									

FIG. 19

	EDIT DATA								
010	EFFECT ID	0001							
	EDIT P ID	EP1	EP2	EP3	EP4	EP5			
	Aspect		0	−−	+25				
	Angle		0	+180	−180				
	Speed		20	20	100				
	H−Mod		0	−−	0				
	V−Mod		0	−−	0				

FIG. 20

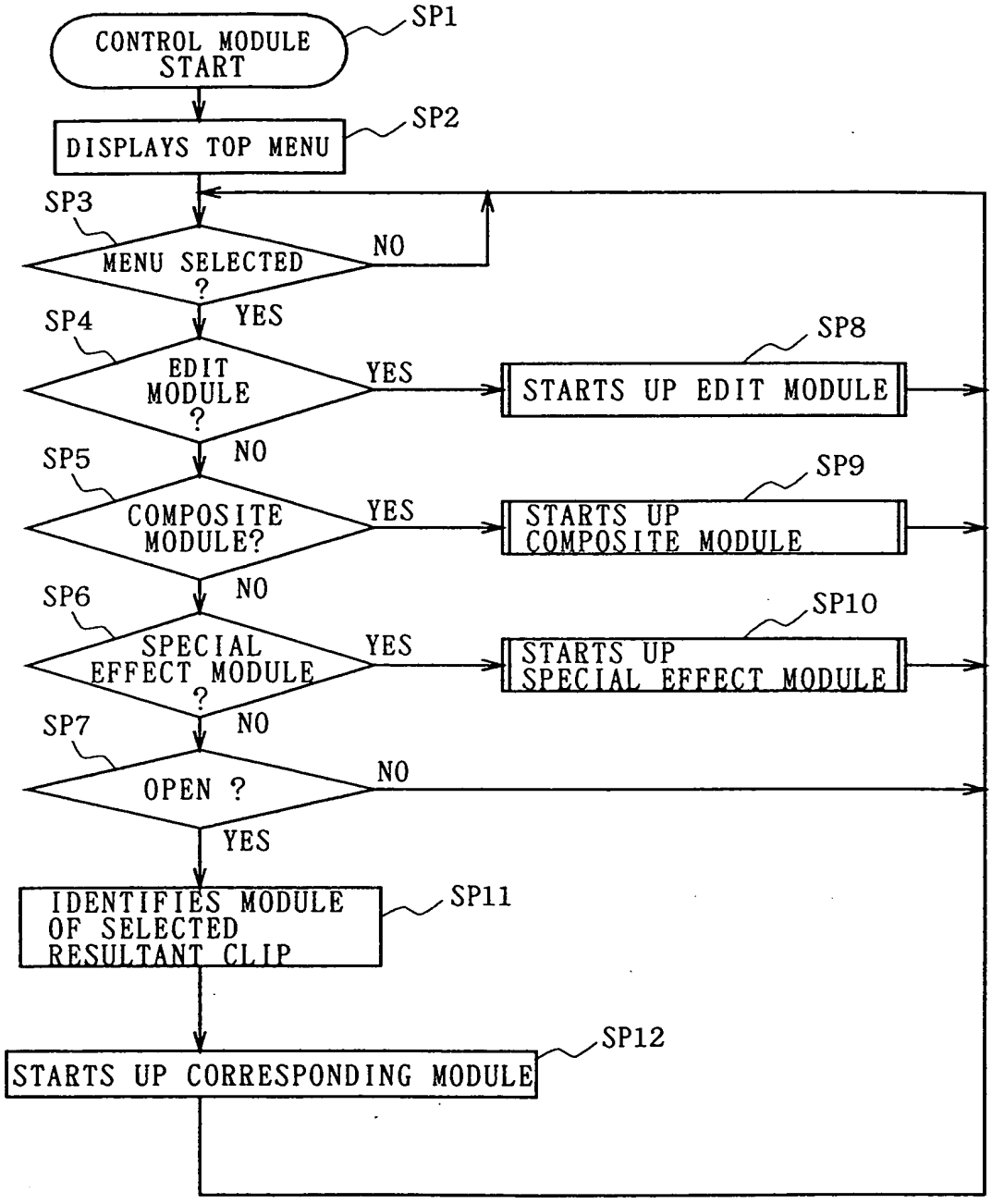
CONTROL MODULE START
SP1
DISPLAYS TOP MENU
SP2
SP3
MENU SELECTED ?
NO
YES
SP4
EDIT MODULE ?
YES
SP8
STARTS UP EDIT MODULE
NO
SP5
COMPOSITE MODULE?
YES
SP9
STARTS UP COMPOSITE MODULE
NO
SP6
SPECIAL EFFECT MODULE ?
YES
SP10
STARTS UP SPECIAL EFFECT MODULE
NO
SP7
OPEN ?
NO
YES
IDENTIFIES MODULE OF SELECTED RESULTANT CLIP
SP11
STARTS UP CORRESPONDING MODULE
SP12

FIG. 21

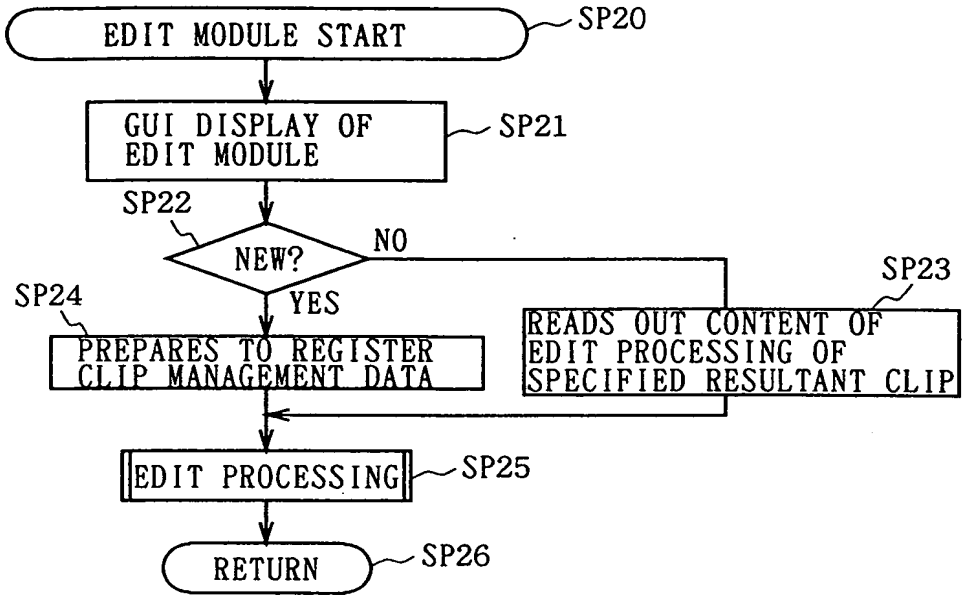
EDIT MODULE START
SP20
GUI DISPLAY OF EDIT MODULE
SP21
SP22
NEW?
NO
YES
SP23
SP24
PREPARES TO REGISTER CLIP MANAGEMENT DATA
READS OUT CONTENT OF EDIT PROCESSING OF SPECIFIED RESULTANT CLIP
EDIT PROCESSING
SP25
RETURN
SP26

FIG. 22

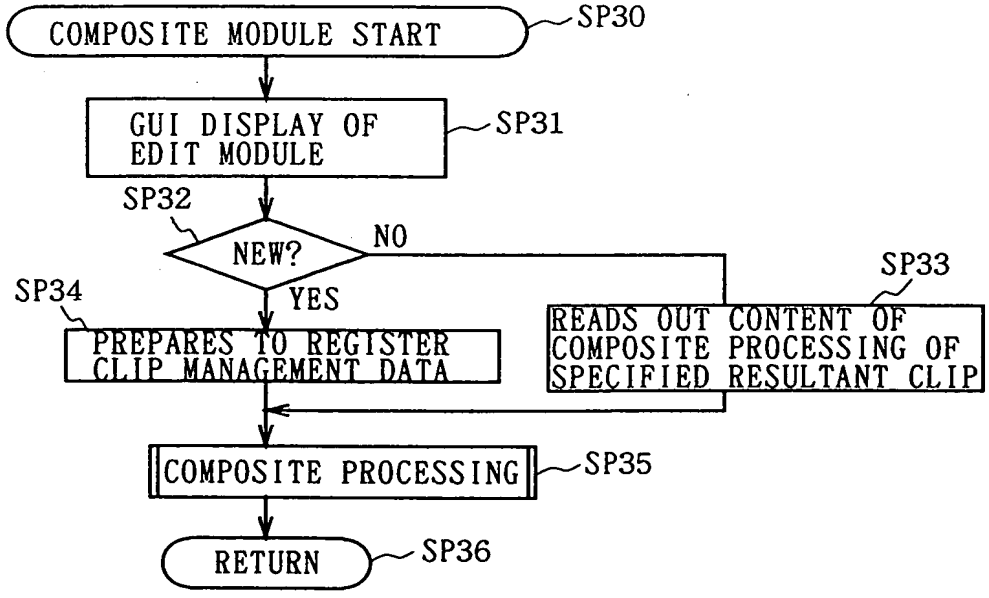
COMPOSITE MODULE START
SP30
GUI DISPLAY OF EDIT MODULE
SP31
SP32
NEW?
NO
YES
SP33
SP34
PREPARES TO REGISTER CLIP MANAGEMENT DATA
READS OUT CONTENT OF COMPOSITE PROCESSING OF SPECIFIED RESULTANT CLIP
COMPOSITE PROCESSING
SP35
RETURN
SP36

FIG. 23

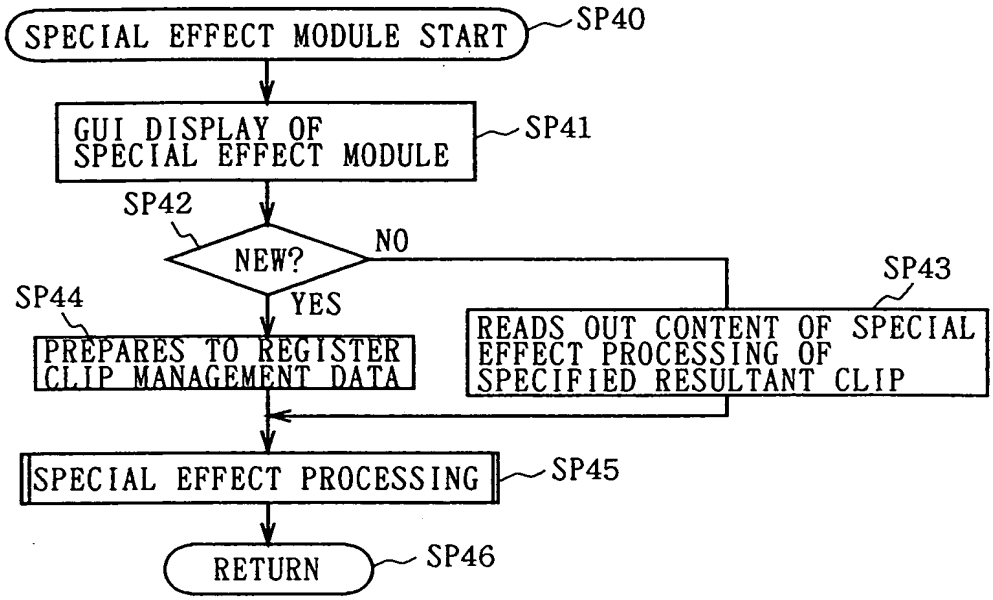
SPECIAL EFFECT MODULE START
SP40
GUI DISPLAY OF SPECIAL EFFECT MODULE
SP41
SP42
NEW?
NO
YES
SP43
SP44
PREPARES TO REGISTER CLIP MANAGEMENT DATA
READS OUT CONTENT OF SPECIAL EFFECT PROCESSING OF SPECIFIED RESULTANT CLIP
SPECIAL EFFECT PROCESSING
SP45
RETURN
SP46

FIG. 24

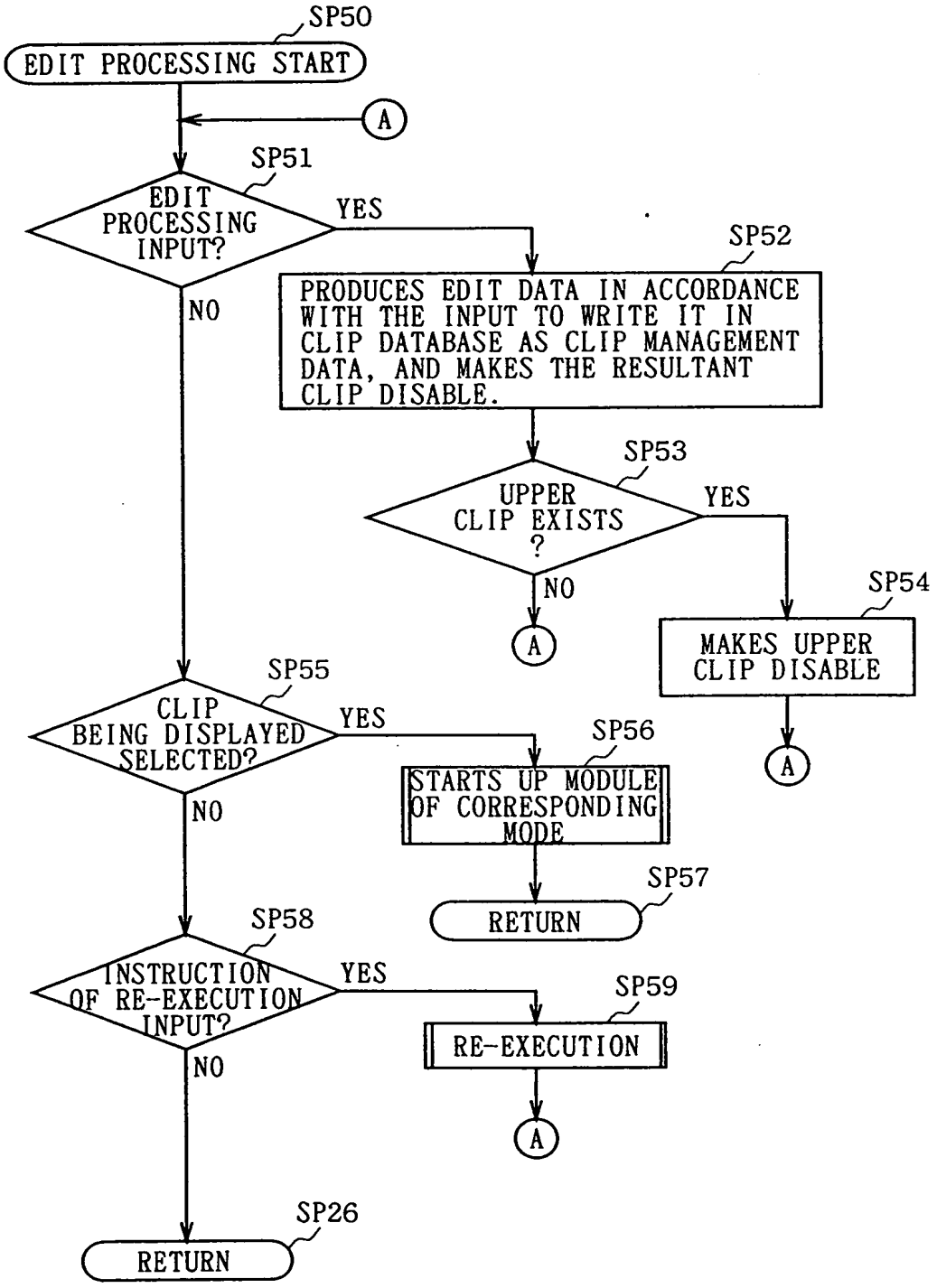
SP50
EDIT PROCESSING START
A
SP51
EDIT PROCESSING INPUT?
YES
NO
SP52
PRODUCES EDIT DATA IN ACCORDANCE WITH THE INPUT TO WRITE IT IN CLIP DATABASE AS CLIP MANAGEMENT DATA, AND MAKES THE RESULTANT CLIP DISABLE.
SP53
UPPER CLIP EXISTS ?
YES
NO
A
SP54
MAKES UPPER CLIP DISABLE
A
SP55
CLIP BEING DISPLAYED SELECTED?
YES
NO
SP56
STARTS UP MODULE OF CORRESPONDING MODE
SP57
RETURN
SP58
INSTRUCTION OF RE-EXECUTION INPUT?
YES
NO
SP59
RE-EXECUTION
A
SP26
RETURN

FIG. 25

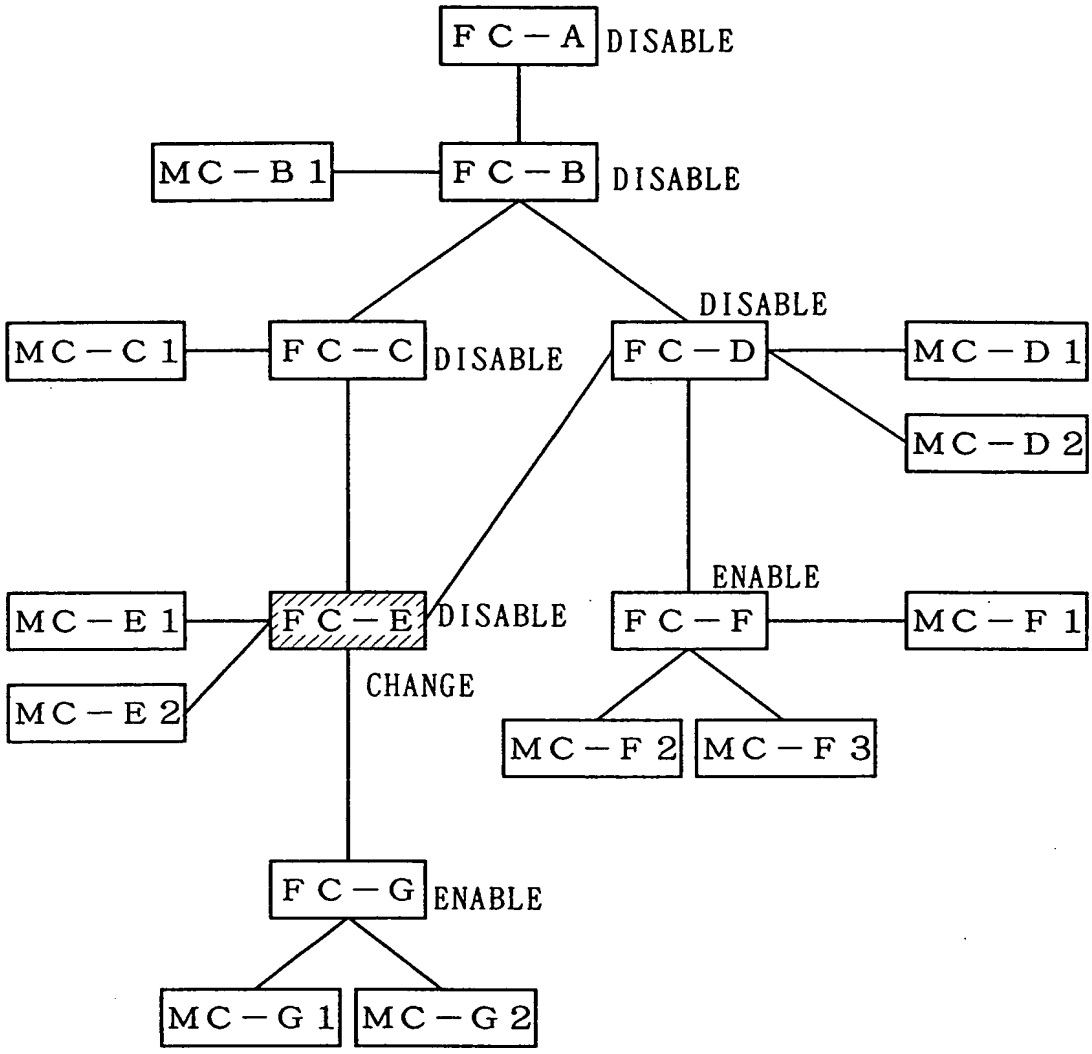
FC－A
DISABLE
MC－B 1
FC－B
DISABLE
DISABLE
MC－C 1
FC－C
DISABLE
FC－D
MC－D 1
MC－D 2
ENABLE
MC－E 1
FC－E
DISABLE
FC－F
MC－F 1
MC－E 2
CHANGE
MC－F 2
MC－F 3
FC－G
ENABLE
MC－G 1
MC－G 2

FIG. 26

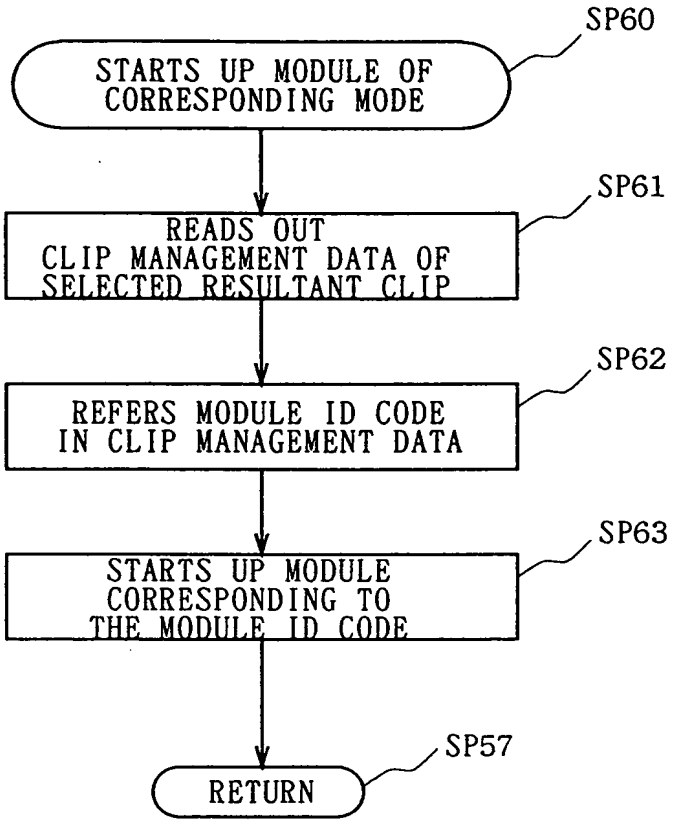
SP60
STARTS UP MODULE OF CORRESPONDING MODE
SP61
READS OUT CLIP MANAGEMENT DATA OF SELECTED RESULTANT CLIP
SP62
REFERS MODULE ID CODE IN CLIP MANAGEMENT DATA
SP63
STARTS UP MODULE CORRESPONDING TO THE MODULE ID CODE
SP57
RETURN

FIG. 27

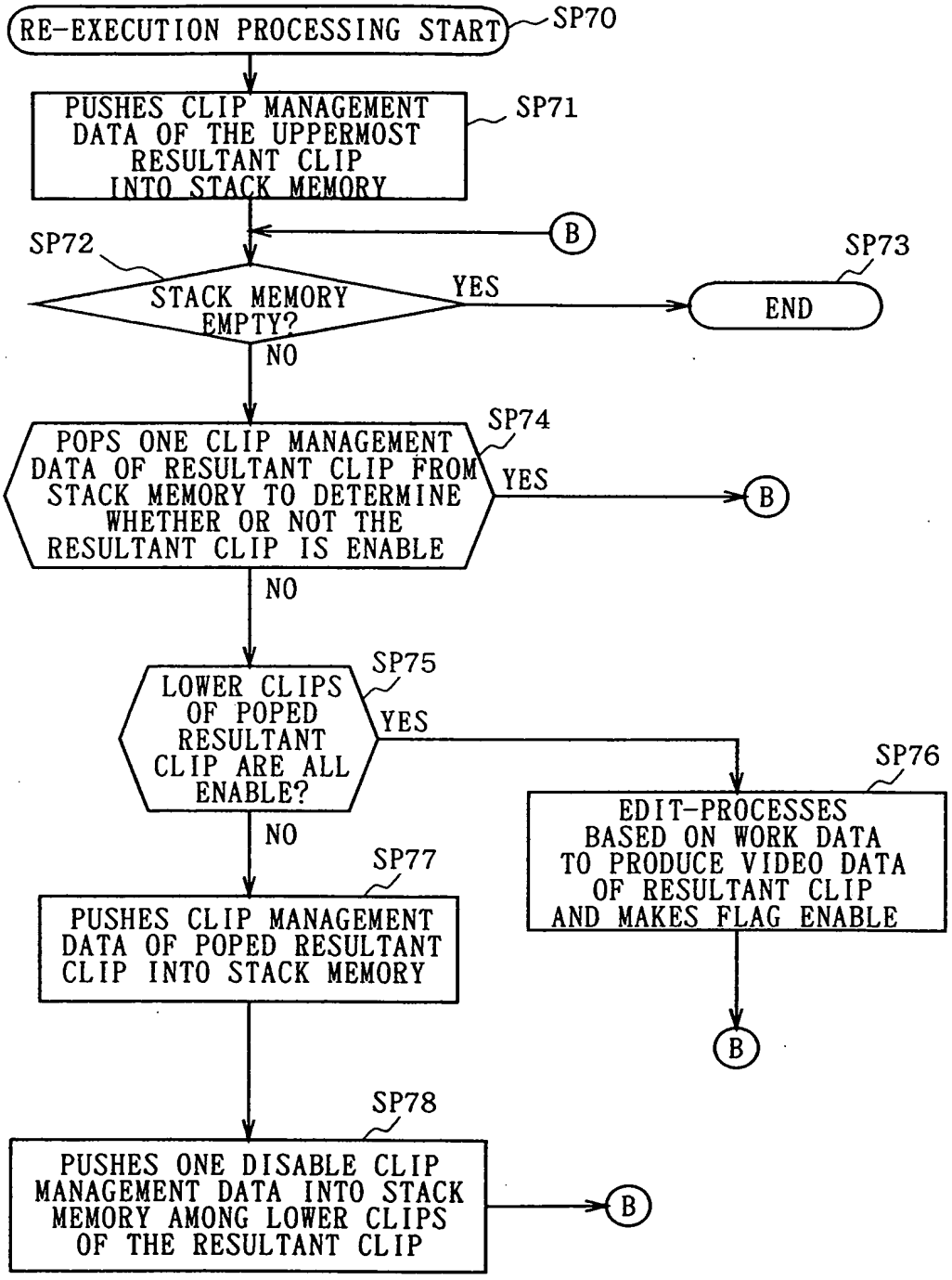
RE-EXECUTION PROCESSING START
SP70
PUSHES CLIP MANAGEMENT DATA OF THE UPPERMOST RESULTANT CLIP INTO STACK MEMORY
SP71
B
SP72
STACK MEMORY EMPTY?
YES
SP73
END
NO
POPS ONE CLIP MANAGEMENT DATA OF RESULTANT CLIP FROM STACK MEMORY TO DETERMINE WHETHER OR NOT THE RESULTANT CLIP IS ENABLE
SP74
YES
B
NO
LOWER CLIPS OF POPED RESULTANT CLIP ARE ALL ENABLE?
SP75
YES
SP76
EDIT-PROCESSES BASED ON WORK DATA TO PRODUCE VIDEO DATA OF RESULTANT CLIP AND MAKES FLAG ENABLE
B
NO
SP77
PUSHES CLIP MANAGEMENT DATA OF POPED RESULTANT CLIP INTO STACK MEMORY
SP78
PUSHES ONE DISABLE CLIP MANAGEMENT DATA INTO STACK MEMORY AMONG LOWER CLIPS OF THE RESULTANT CLIP
B

FIG. 28

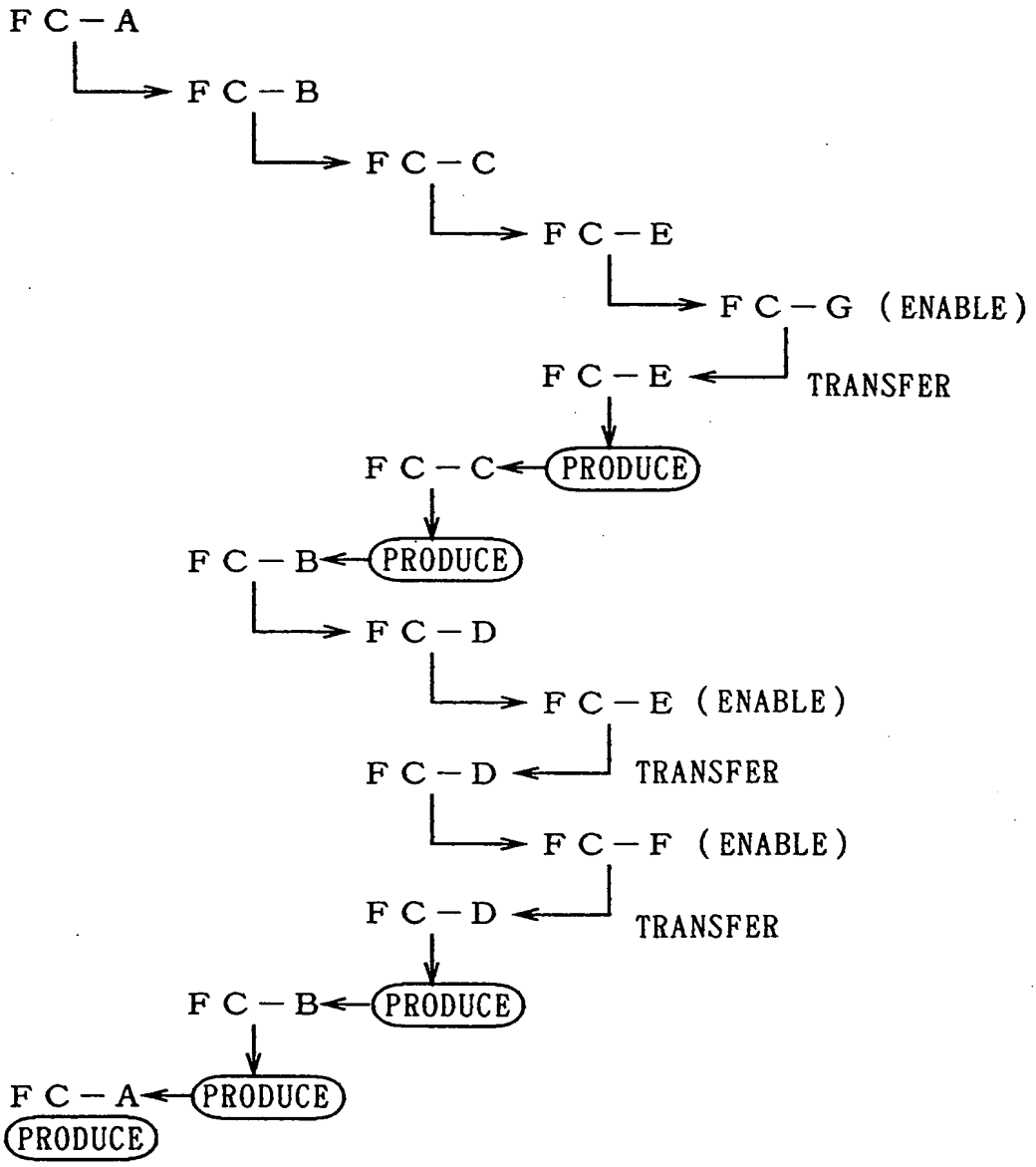
FC-A
FC-B
FC-C
FC-E
FC-G (ENABLE)
FC-E
TRANSFER
FC-C
PRODUCE
FC-B
PRODUCE
FC-D
FC-E (ENABLE)
FC-D
TRANSFER
FC-F (ENABLE)
FC-D
TRANSFER
FC-B
PRODUCE
FC-A
PRODUCE
PRODUCE

FIG. 29

DESCRIPTION OF REFERENCE NUMERALS

1...editing system, 2...work station, 2A...body, 2B...display, 2C...key board, 2D...mouse, 2E...pen tablet, 3...device controller, 4...exclusive controller, 5...video disk recorder, 6...video tape recorder, 7...switcher, 8...video camera, 9...digital multi-effector, 10...monitor, 11...audio mixer, 20...system bus, 21...CPU, 21A...ROM, 21B...RAM, 22...video processor, 23...display controller, 24...HDD interface, 25...FDD interface, 26...pointing device interface, 27...external interface, 30...menu window, 31...clip tree window, 32...key window, 33...library window, 34, 41, 51...time line window, 35...parameter setting window, 36...preview screen display window, 37...device control window, 38...edit content display window, 39...control command window, 40, 50...effect selection window, 42, 52...parameter setting window.